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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|----------------------------|------------------------|
| 10/568,363 | 03/24/2006 | Javier Marti Sendra | MARTISENDRAETALIPCT | 1159 |
| 25889 | 7590 | 07/10/2007 | | |
| WILLIAM COLLARD COLLARD & ROE, P.C. 1077 NORTHERN BOULEVARD ROSLYN, NY 11576 | | | EXAMINER RAHLL, JERRY T | |
| | | | ART UNIT 2874 | PAPER NUMBER |
| | | | MAIL DATE 07/10/2007 | DELIVERY MODE PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/568,363 | Applicant(s) MARTI SENDRA ET AL. | |
| | Examiner Jerry T. Rahl | Art Unit 2874 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 April 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>4/19/07</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Response to Arguments

1. Applicant's arguments, filed April 19, 2007, with respect to the drawings and Claim 3 have been fully considered and are persuasive. The objection to the drawings and the rejection of Claim 3 under 35 USC § 112 have each been withdrawn.

Applicant's arguments regarding the rejection of Claims 1-7 under 35 USC § 103 in view of Villeneuve et al. have been fully considered but they are not persuasive. Applicant argues that because Villeneuve et al. is used to demultiplex frequencies and not for power division the present claims are patentable in view of Villeneuve et al. However, when the frequencies are divided in Villeneuve et al., there is inherently a division of power to each of the resulting signals. Therefore, even though the device of Villeneuve et al. is not primarily used as a power divider, it functions in such a way that it does divide power between two resulting optical signals.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on April 19, 2007 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

3. The drawings submitted April 19, 2007 have been reviewed and determined to facilitate understanding of the invention. The drawings are accepted as submitted.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,130,969 to Villeneuve et al.

6. Regarding Claim 1, Villeneuve et al. describes a method of dividing a guided EM signal into two signals (identified as transmission and forward drop) by exciting a coupler (see Figure 3) made by disposing two parallel coupled cavity waveguides (304, 306) close to one another and implement in photonic crystals, where the two guides are physically separated (see Figure 3 and Columns 4-5). While Villeneuve et al. does not specifically describe the guides as curved, the described guides "can be" curved during manufacture. Further, Villeneuve et al. does not specifically describe the divided signals as half-power signals. However, it would have been obvious to one of ordinary skill in the art at the time of invention to use alter the resonator system (307) configuration variables to cause the divided signals to be half-power, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). The motivation for doing so would have been to route multiple signals.

7. Regarding Claim 2, Villeneuve et al. describes exciting the odd mode (200) of the coupler. While Villeneuve et al. does not specifically describe the divided signals having 180

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deg phase difference, such a phase difference would inherently result from exciting the odd mode as described.

8. Regarding Claim 3, Villeneuve et al. describes exciting the even mode (202) of the coupler. While Villeneuve et al. does not specifically describe the divided signals having 0 deg phase difference, such a phase difference would inherently result from exciting the odd mode as described.

9. Regarding Claim 4, Villeneuve et al. describes the photonic crystal (302) as a 2D crystal.

10. Regarding Claim 5, Villeneuve et al. describes the photonic crystal (302) as a 2D crystal.

11. Regarding Claim 6, Villeneuve et al. does not specifically describe the photonic crystal having a triangular lattice. However, triangular lattice photonic crystals used to form waveguide structures are well-known. It would have been obvious to one of ordinary skill in the art at the time of invention to use such a well-known triangular lattice crystal in the device of Villeneuve et al., since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416. The motivation for doing so would have been to construct the device using well-known fabrication methods.

12. Regarding Claim 7, Villeneuve et al. describes the photonic crystal having a square lattice (see Column 5).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

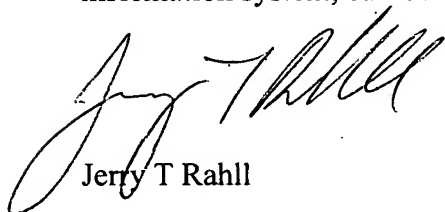
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry T. Rahll whose telephone number is (571) 272-2356. The examiner can normally be reached on M-F (9:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jerry T Rahll

/Sung Pak/
Primary Examiner
AU 2874